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New Species of Trichoptera from the United States

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Recently the writer had the opportunity to examine several large collections of Caddis flies from Minnesota and southern United States. A number of undescribed species were encountered, nine of which are described herein. I would like to express my appreciation to Dr. H. R. Dodge, Dr. C. E. Mickel, and Dr. R. H. Daggy for collecting this material and making it available for study. Unless designated otherwise, holotypes are in the author's collection at the University of Wyoming.

Protoptila talola n. sp.

This species is closely related to *maculata* (Hagan) but can be distinguished from that species by the gradual, not abrupt, upturned apex of the lateral spines of the oedagus, by the mesad-directed instead of laterad-directed apices of the lateral spines, by the evenly rounded caudo-ventral corner of the oedagus and several other details of the male genitalia.

Male.—Length 4 mm. Spurs 0-4-4. Anterior margin of hind wing abruptly narrowed beyond hamuli. Color and general structure similar to *maculata*, but smaller in size. Male genitalia as in fig. 1. Sternite of sixth segment with an acute mesal projection reaching just beyond margin. Eighth sternite produced into a long bifid process, apical incision shorter than in *maculata*, upturned only slightly distally. Tenth tergite with lateral arms directed ventro-caudad, apex nearly truncate, turned mesad but not sufficiently to enclose oedagus, a few setae dorsally; inner aspect as in fig. 1, apparent cerci ovate from lateral view, triangular from dorsal view. Lateral spines of oedagus short, sinuate from lateral view, attenuated distally and gradu-

ally curved dorsad; from dorsal aspect, fig. 1A, distal portion curved mesad, almost touching oedagus, a brush of minute caudad-curved setae along margin near apex. Oedagus with distal portion considerably enlarged, ventral margin rounded, caudo-ventral corner not produced beyond margin.

Holotype, male. Pine County, MINNESOTA, May 23, 1941, C. E. Mickel. Holotype deposited in the entomological collection of the University of Minnesota.

Protoptila georgiana n. sp.

This species bears some resemblance to *alexanderi* Ross but can readily be distinguished from that species and other described species of the genus by the tenth tergite, the lateral spines of the oedagus and the eighth sternite.

Male.—Length 3 mm. Spurs prominent, 0—4—4. Hind wings sabre-shaped, anterior margin abruptly narrowed beyond hamuli. Color and general structure typical for genus.

Male genitalia as in fig. 2. Sternite of sixth segment with a prominent mesal projection, fig. 2A. When viewed from dorsal aspect eighth tergite considerably flared laterally; apical margin heavily pigmented, slightly incised and bearing a few large setae. Eighth sternite produced into a long bifid process with apical incision wide, fig. 2B. Dorsad to the eighth sternite is a concave, deeply bifid plate-like process bearing a single seta at apex of each lateral lobe, best viewed from ventral aspect, fig. 2B. Tenth tergite divided into a pair of sclerotized structures projected caudad and gradually ventrad; apex of lateral lobe beak-shaped, turned slightly mesad but not quite enclosing oedagus, a few scattered setae along dorsal margin. Oedagus extending caudad beyond any other portion of genitalia, middle portion considerably narrowed, widened apically, slightly incised when viewed dorsally, caudo-ventral corner produced slightly beyond remainder; lateral spines of oedagus slender, arcuate, apex attenuated and bearing a few minute setae. Ventrad from base of oedagus arises a pair of slender setose lobes, directed caudo-ventrad. Ventrad and mesad to these lobes is a pair of structures bearing no setae and abruptly curved dorsad.

Holotype, male. Macon, GEORGIA, May 1944, H. R. Dodge.

Chimarra moselyi n. sp.

This species is related to *florida* Ross; it can be separated from that and other described species by the flat sinuate lateral processes of the tenth tergite, the slender rod-like structures associated with the oedagus and the wide prominent mesal process of the ninth sternite.

Male.—Length 5 mm. General color dark brown, legs pale yellowish with spurs darker, wings uniformly dark brown; antennae slightly darker than wings. Genitalia as in fig. 3. Tenth tergite, except lateral processes, semi-membranous, distal margin irregular; lateral sclerotized process extends caudad beyond remainder, twisted so that when viewed from dorsal aspect distal portion flattened, widened, rounded at apex; on dorsal surface are two short setae on an enlarged flattened tubercle; from base arises the prominent cercus. Claspers with base narrow, dorsal portion elongated into a clavate caudad directed process, apex quadrate when viewed dorsally; ventro-mesal portion from caudal view enlarged into a large triangular process, bearing several long setae along lateral margin (this margin and setae discernible from lateral view). Two pairs of sclerotized rods are associated with the oedagus: a ventral pair, long and slender, extending caudad beyond any other portion of genitalia, apex curved ventrad; a dorsal pair, heavily sclerotized, shorter than ventral pair, apex acute and slightly curved dorsad. Mesal process of ninth sternite very large and prominent.

Holotype, male. MACON, GEORGIA, July 1944, H. R. Dodge.

I take pleasure in naming this species in honor of Mr. Martin E. Mosely of the British Museum (Natural History), who has made so many noteworthy contributions to our knowledge of the Trichoptera.

Nyctiophlax celta n. sp.

This species is closely related to *vestitus* (Hagen); it can be distinguished from that species by the shape of the tenth tergite, the shape and size of the apical lobes of the clasper, the shape and size of the oedagus and the much narrower condition of the ninth sternite.

Malc.—Length 5 mm. Wings light brown, antennae and legs yellowish. Wings with R_2 absent. General characteristics typical for genus. Male genitalia as in fig. 4. Tenth tergite lightly sclerotized, viewed from dorsal aspect apical margin with a distinct incision which forms a pair of short setiferous points. Cerci quadrate, extending caudad beyond tenth tergite, ventromesal portion projected ventro-caudad as a sclerotized process, its apex broadly rounded, not sub-acute as in *vestitus*; apical portion bearing several short stout setae. Claspers, seen from lateral aspect, with base rounded, gradually narrowed apically, apex with lateral lobe digitate, mesal lobe acute, not much longer than lateral lobe; seen from caudal view, fig. 4A, concave near base, apical portion widely and deeply incised; mesal lobe viewed from dorsal or caudal aspect quadrate apically. Oedagus somewhat tubular, apical portion enlarged and colored dark brown, apex bluntly rounded, no discernable dorsal rods present.

Holotype, male. Tallulah River, Tallulah Falls, GEORGIA, June 16, 1945, R. H. Daggy.

***Cheumatopsyche wabasha* n. sp.**

Malc.—Length 8 mm. Wing irrorate with brown and light tan. Head and thorax dark brown. The five basal segments of flagellum with a distinct dark brown V-mark.

Genitalia as in fig. 5. Tenth tergite somewhat wider than long, lateral lobes conspicuous, not extending dorsad to level of segment; seen from caudal view fig. 5A, lateral margin rounded, apical portion constricted, apices blunt and widely separated. Viewed from dorsal aspect apex of tenth tergite with a small incision; setae covering apical portion of lateral lobes quite long and curved caudad. Setiferous wart near base of tenth tergite lateral lobes elongate, irregular and bearing a number of setae. Basal segment of clasper narrow, gradually widened apically, apical segment tapering to a narrow apex, curved cephalad. Oedagus with basal portion only slightly enlarged, apical portion abruptly directed dorsad, lateral lobes short and ovate.

Holotype, male. Wabasha, MINNESOTA, July 19, 1941, Light trap, H. T. Peters. Holotype deposited in the entomological collection of the University of Minnesota.

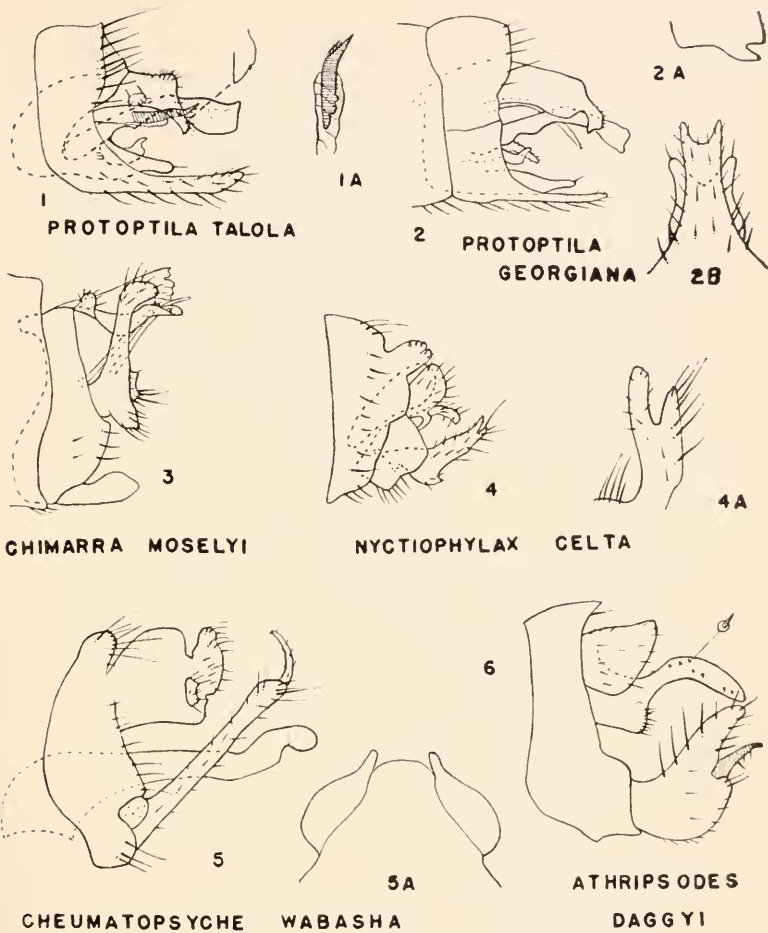


Fig. 1. *Protophila talola*, male genitalia, lateral aspect; 1A, lateral spine of oedagus. Fig. 2. *Protophila georgiana*, male genitalia, lateral aspect; 2A, sternite of sixth segment; 2B, sternite of eighth segment. Fig. 3. *Chimirra moselyi*, male genitalia, lateral aspect. Fig. 4. *Nyctiophylax celta*, male genitalia, lateral aspect; 4A, clasper, caudal view. Fig. 5. *Cheumatopsyche wabasha*, male genitalia, lateral aspect; 5A, tenth tergite, caudal view. Fig. 6. *Athripsodes daggyi*, male genitalia, lateral aspect.

Athripsodes daggyi n. sp.

This species is closely related to *ophioderus* Ross, from which it differs in the shape of the tenth tergite, the much wider cerci, the wider basal portion of the clasper and the pair of stout straight dorsal spines of the oedagus.

Male.—Length 10 mm. Eyes small; general characteristics same as for genus. Color of head, body and appendages dark brown. Genitalia as in fig. 6. Tenth tergite long and narrow, as in *ophioderus* somewhat s-shaped when viewed laterally; basal portion large and wide, along ventro-distal corner a group of eleven short stout yellowish setae, dorsal surface bearing a pair of very short triangular protuberances; the dorsal surface of the apical portion bears a number of scattered minute stout spines; inner surface deeply excavated, viewed ventrally apical portion tapers gradually to a blunt point which is narrower than remainder. Cerci deeply incised dorsally, short and wide, ventro-caudal corner rounded, a few scattered setae over most of surface. Claspers with digitate lobe rather short, stout, bearing a considerable number of long setae; the heavily sclerotized spine acute distally, gradually curved mesad, bearing three short spines. Ventral spatulate plate of oedagus slightly longer than main structure; dorsal spines short, stout, heavily sclerotized and straight, apex acute.

Holotype, male. Flat Shoals, 5 miles south of Concord, GEORGIA, May 27, 1945, R. H. Daggy. *Paratype*, 2 males. Same data as for holotype.

Hydropsyche bidentata n. sp.

This species bears some resemblances to *betteni* Ross but differs markedly in the shape and incised apex of the oedagus, the vary short apical segment of the claspers, and the very irregular outline of the tenth tergite.

Male.—Length 10 mm. Genitalia as in fig. 7. Tenth tergite incised on meson almost one-half distance to base, apical dorsal corner with a sharp flat angulation, apical margin markedly declivous, truncate, very irregular; ventro-distal corner with a setiferous process which extends to the margin as a distinct,

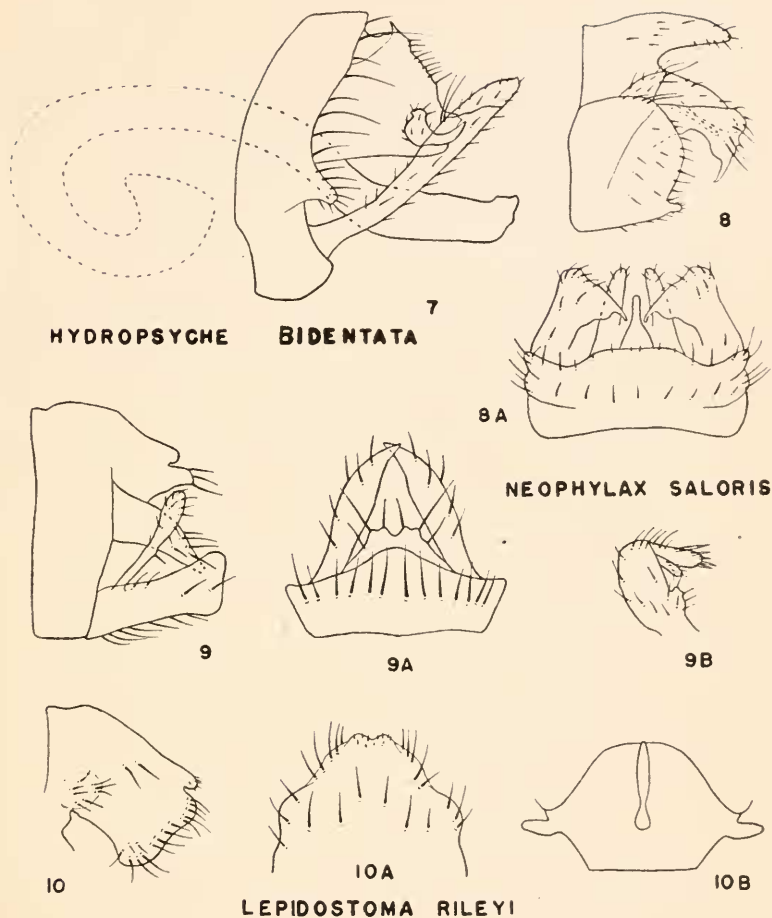


Fig. 7. *Hydropsyche bidentata*, male genitalia, lateral aspect. Fig. 8. *Neophylax saloris*, male genitalia, lateral aspect; 8A, tenth tergite, dorsal aspect. Fig. 9. *Lepidostoma rileyi*, male genitalia, lateral aspect; 9A, tenth tergite, dorsal aspect; 9B, clasper, ventral aspect. Fig. 10. *Lepidostoma rileyi*, female genitalia, lateral aspect; 10A, tenth tergite, dorsal aspect; 10B, spermatheca.

sharp, dorsad-directed tooth. Claspers with basal segment gradually widened toward apex; apical segment very short, acute apically and directed mesad. Oedagus cylindrical, long, basal portion does not quite form a complete circle, remainder extends gradually ventrad with the apical portion upturned to it; apex truncate except for a slight ovate lobe laterally, apico-dorsal portion flat and incised.

Holotype, male. COLUMBIA, SOUTH CAROLINA, August 5, 1943, D. G. Denning. *PARATYPE*, male. Same data as for holotype.

Neophylax saloris* n. sp.

This species bears some resemblance to *nacatus* Denning but differs markedly from that and other described species in the long caudad-directed dorsal branch of the tenth tergite, the abruptly ventrad-directed clasper and the wide flattened mesal portion of the ninth sternite.

Malc.—Length 10–10.5 mm. Head, body and appendages luteous. Wings irrorate light brown, apical portion of forewings considerably darker. Spurs brownish, inner spur of hind legs almost twice as long as outer spur, attenuated to a narrow apex. Sternite of seventh segment with an acute prominent mesal projection. Genitalia as in fig. 8. Tenth tergite with dorsal branch convex, directed caudad, seen from dorsal aspect incised one-half distance to base, forming a pair of slender digitate lobes bearing a few short setae apically; ventral branch directed ventrad, also deeply incised, both portions lying on each side of the slender attenuated oedagus, fig. 8A. Lateral portion of ninth segment with a triangular mesad-directed lobe, bearing several long setae. Claspers extend caudad as far as tenth tergite, apical portion directed ventrad into an acute apex, lateral margin nearly straight; viewed from ventral aspect claspers flattened, entire clasper curved mesad. Ninth sternite with apical margin produced into a wide flat projection.

Holotype, male. MACON, GEORGIA, November, 1943, H. R. Dodge. *Paratypes*, 3 males. Same data as for holotype.

* While this paper was in press this species was described as *Neophylax atlanta* by H. H. Ross (Trans. Amer. Ent. Soc. 73: 152. 1947). *N. saloris* is thus a synonym of *N. atlanta* Ross.

Lepidostoma rileyi n. sp.

Male.—Length 6.5 mm. Wings, body and appendages light brown. Wings without any unusual modifications. Maxillary palpi short, apparently one-segmented, held closely appressed to head and not extending beyond it. Antennal scape about as long as width of head. Genitalia as in fig. 9. Ninth segment approximately annulate, division between ninth and tenth tergites indistinct from lateral view. Seen from dorsal aspect tenth tergite divided into a pair of small irregular processes, each bearing several large setae, fig. 9A. Lobes of ninth segment directed gradually ventrad, acute distally, several scattered setae over dorsal surface; from dorsal aspect lobes are curved mesad so that apices overlap, fig. 9A. Claspers present a two-segmented appearance due to the distal portion being abruptly turned mesad and not discernible from lateral view; seen from lateral aspect, fig. 9, basal portion of clasper somewhat rectangular, and bearing near base a long slender dorsal process which is directed dorsad nearly to level of tenth tergite; seen from ventral aspect, fig. 9B, a small sub-triangular process is present along lateral margin, distal portion slender, elongate, apex rounded, lateral and apical margin bearing several large prominent flattened setae; where distal portion turns at a right angle from basal portion a slender digitate process arises on mesal surface.

Female.—Length 7 mm. Same general color and characteristics as male. Genitalia as in fig. 10. Viewed from dorsal aspect tenth tergite incised distally forming a pair of small protuberances bearing minute setae, fig. 10A. Viewed laterally, fig. 10, distal margin irregular with sides developed ventrad into a thin flange, quite heavily setose. Ventral groove of spermatheca, fig. 10B, occupying posterior two-thirds. Prominent lateral projections of spermatheca continue dorsad to form a large concave cephalad directed plate.

Holotype, male. Ela, NORTH CAROLINA, May 30, 1941, S. S. Easter. *Allotype*, female.—Same data as holotype. *Paratypes*, 2 females.—Same data as holotype. Types deposited in the entomological collection of the University of Minnesota.

It is with pleasure that I name this new species in honor of Dr. W. A. Riley, retired head of the Division of Entomology, University of Minnesota.